Hepatitis A

REPORT ACUTE OR ACTIVE (IgM+) CASES IMMEDIATELY

Section 1: ABOUT THE DISEASE

A. Etiologic Agent

Hepatitis A is caused by the hepatitis A virus (HAV), an RNA virus in the picornavirus family.

B. Clinical Description

The onset of hepatitis A is usually abrupt, with fever, malaise, anorexia, nausea, and abdominal discomfort; some individuals may experience diarrhea. Jaundice (yellowing of the skin or whites of the eye, dark urine, and clay-colored stool) may follow a few days later. Infections vary from asymptomatic (common in young children) to disabling illness lasting several months. Generally, symptom severity increases with increasing age. The duration of symptomatic hepatitis A is several weeks. Prolonged, relapsing hepatitis for up to one year can occur in some cases. Hepatitis A is rarely fatal and has no chronic carrier state. The elderly and persons with chronic liver disease (including chronic hepatitis B or C) are at greater risk of severe hepatitis A and death. Hepatitis A is clinically indistinguishable from other types of hepatitis. It must be diagnosed through laboratory testing.

C. Vectors and Reservoirs

Humans with active infections (symptomatic or not) are the reservoir for this disease. Rarely, non-human primates can serve as a reservoir.

D. Modes of Transmission

The principal mode of transmission is direct or indirect person-to-person spread via the fecal-oral route. Persons become infected by ingesting the virus. This can happen in a variety of ways: ready-to-eat or uncooked food (e.g., sandwiches, salads, ice cream, strawberries) can become contaminated by an infected food worker with poor hygiene; with inadequate treatment of fecally-contaminated drinking water; with contaminated produce (such as lettuce or strawberries irrigated or processed with contaminated water); by exposure to shellfish harvested from fecally-contaminated waters and then consumed raw or undercooked; and by direct person-to-person contact, including sexual contact (e.g., oral-anal contact). Hepatitis A can occur among people using illicit drugs—including injection drugs—through close contact, and occasionally, through a blood-to-blood exposure. Bloodborne transmission, although rare, can occur during the viremic phase of the disease.

E. Incubation Period

The incubation period for hepatitis A ranges from 15–50 days, with an average of 28–30 days.

F. Period of Communicability or Infectious Period

Individuals are usually most infectious from 1–2 weeks before their symptoms begin to about 1 week after. Viral shedding in the stool is greatest during the two weeks before symptom onset.

G. Epidemiology

Hepatitis A has a worldwide distribution and occurs as sporadic cases and outbreaks. In countries where sanitation is poor, infection is common and occurs at an early age. Adults, therefore, are usually immune, and outbreaks of symptomatic disease are uncommon. In developed countries, disease transmission is a problem in daycare settings with diapered children in attendance, among household and sexual contacts of acute cases, and among travelers to countries where the disease is common.

H. Bioterrorist Potential

This pathogen is not considered to be of risk for use in bioterrorism.

Section 2:
REPORTING CRITERIA AND LABORATORY TESTING

A. What to Report to the Massachusetts Department of Public Health (MDPH)

Report any acute or active cases with:

- Demonstration of immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) in the blood.

Note: See Section 3C for information on how to report a case.

B. Laboratory Testing Services Available

The MDPH State Laboratory Institute (SLI) does not provide routine testing services for evidence of infection with hepatitis A virus in clinical specimens or implicated food samples.

Section 3:
REPORTING RESPONSIBILITIES AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To identify whether the case may be a source of infection for other persons (e.g., a diapered child, daycare attendee, or food handler), and if so, to prevent further transmission.
- To identify sources of public health concern (e.g., a salad bar prepared by an infectious food handler), and to stop transmission from such a source.

B. Laboratory and Health Care Provider Reporting Requirements

Hepatitis A is reportable to the local board of health (LBOH). The MDPH requests that health care providers immediately report to the LBOH in the community where the case is diagnosed, all confirmed or suspect cases of hepatitis A, as defined by the reporting criteria in Section 2A.

Due to serious public health implications, it is requested that IgM+ antibody cases of hepatitis A be reported immediately to the LBOH in the community in which they are diagnosed. If this is not possible, immediately call the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850, any time of day or night.

Laboratories performing examinations on any specimens derived from Massachusetts residents that yield a hepatitis A IgM+ result shall immediately report such evidence, directly by phone, to the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850.

C. Local Board of Health (LBOH) Reporting and Follow-Up Responsibilities

Reporting Requirements

MDPH regulations (*105 CMR 300.000*) stipulate that hepatitis A is reportable to the LBOH and that each LBOH must immediately report the occurrence of any acute or active (IgM+) case of hepatitis A, as defined by the reporting criteria in Section 2A. Cases should be reported to the MDPH Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS) using an official MDPH *Hepatitis A Case Report Form* (found at the end of this chapter). Refer to the *Local Board of Health Timeline* at the end of this manual's *Introduction* section for information on prioritization and timeliness requirements of reporting and case investigation.

Case Investigation

A LBOH that learns of an acute or active (IgM+) case of hepatitis A should immediately call the MDPH Division of Epidemiology and Immunization, any time of day or night, at (617) 983-6800 or (888) 658-2850.

1. It is the responsibility of the LBOH to complete the MDPH *Hepatitis A Case Report Form* (found at the end of this chapter) by interviewing the case and others who may be able to provide the pertinent information. Much of the information required on the form can be obtained from the health care provider, from other involved medical providers, or from the medical record.
2. The main objective in following up on a case of hepatitis A is to determine whether the case is likely to have transmitted his/her infection to others, including situations where a case is identified as a food handler, a patient care provider, or an employee of or attendee in a childcare setting. The MDPH *Hepatitis A Worksheet* (found at the end of this chapter) will assist you in recording pertinent information and in initiating appropriate control and prevention measures. This worksheet is for LBOH use and does not need to be sent to the MDPH. *Note: This worksheet does not replace the MDPH Hepatitis A Case Report Form.*
3. Use the following guidelines to assist in completing the case report form:
    a. Accurately record the case's demographic information, including occupation, if applicable. If a case is unemployed, this should be clearly indicated.
    b. Record all relevant clinical information, with particular attention to the onset date. Because a case of hepatitis A is most infectious within two weeks before symptom onset, be sure to record the date of the onset of illness and symptom information accurately. If symptom onset date is unclear, use the date when jaundice was first noticed. If no symptoms were noted, the date the blood was drawn should be used as the date of onset for purposes of disease control.

c. Record all available diagnostic laboratory test results.

d. Record all information relevant to control and prevention of further cases, including risk history. Using the incubation period for hepatitis A (2–7 weeks), ask the case about food handling, supervised care settings, and other exposures during the incubation period before the illness started.

   i. Food handling history: These questions (food handler, employment sections) are to assess the risk of transmitting infection via food, patient care (feeding), etc. Determine whether the case is a food handler or patient care provider. If so, appropriate control measures need to be instituted. (See Section 4A for more information.)

   ii. Supervised care settings: These questions are asked because hepatitis A is spread through the fecal-oral route. Children with hepatitis A are often asymptomatic; however, they still shed the virus in their stool. People who are exposed to the fecal material of these cases could be exposed to hepatitis A. Determine whether the case is a child, resident, or employee in a supervised care facility. If so, appropriate control measures need to be instituted. (See Section 4A for more information.)

   iii. Food consumption: These questions about raw shellfish consumption are asked because, on occasion, hepatitis A virus infection is associated with ingestion of uncooked or partially cooked shellfish from sewage-contaminated waters. If you suspect that the case became infected through the consumption of shellfish or other food(s), use the MDPH *Foodborne Illness Complaint Worksheet* (located at the end of this chapter) to facilitate recording additional information. It is requested that the LBOH fax or send this worksheet to the MDPH Center for Environment Health, Food Protection Program (FPP) (see top of worksheet for fax number and address). This information is entered into a database to link to other complaints, thus helping to identify foodborne illness outbreaks. *Note: This worksheet does not replace the MDPH Hepatitis A Case Report Form.*

   iv. Contact with known cases: These questions are asked because hepatitis A can be spread through household or sexual contact.

   v. Vaccination and travel history: These questions are asked in order to identify where the case may have become infected. Because of poor sanitation and overcrowding, hepatitis A is endemic in many developing countries. A recent foreign travel history may be indicative of foreign exposure.

   vi. Other risk factors: These questions are asked in order to obtain a full assessment of other people who may have been exposed to the case during their infectious period (e.g., sexual partners, drug using partners). Many of these questions are very sensitive, but this information can be critical in implementing appropriate control measures. Assure confidentiality for the case, and avoid appearing judgmental about a case's personal behavior or history.

e. If you have made several attempts to obtain case information but have been unsuccessful (e.g., the case or health care provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), please fill out the case report form with as much information as you have gathered. Please note on the form the reason(s) why it could not be filled out completely.

3. After completing the form, attach laboratory report(s) and fax or mail (in an envelope marked "Confidential") to ISIS. The confidential fax number is (617) 983-6813. Call ISIS at (617) 983-6801 to confirm receipt of your fax. The mailing address is:

MDPH, Office of Integrated Surveillance and Informatics Services (ISIS)
305 South Street, 5th Floor
Jamaica Plain, MA 02130
Fax: (617) 983-6813

4. Institution of disease control measures is an integral part of case investigation. It is the responsibility of the LBOH to understand, and if necessary, institute the control guidelines listed in Section 4.

Section 4:

CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements *(105 CMR 300.200)*

Minimum Period of Isolation of Patient

Until one week after onset of symptoms or until end of febrile period, whichever is later.

Minimum Period of Quarantine of Contacts

No restrictions except for food handling facility employees, who shall be excluded from their occupations for 28 days, unless they receive a prophylactic dose of immune globulin (IG) within 14 days of exposure. (Exceptions to this exclusion are valid, if documentation of HAV vaccination can be produced or serologic evidence of immunity to HAV is demonstrated.) Receipt of IG will not interfere with subsequent serologic tests for HAV.

Note: A food handler is any person directly preparing or handling food. This can include a patient care or childcare provider. See the Glossary (at the end of this manual) for a more complete definition.

B. Protection of Contacts of a Case

For public health intervention, a case is considered to be infectious for 14 days before the onset of symptoms to 7 days after onset of symptoms. (Fecal shedding of the virus peaks during the week before onset of symptoms.) Control measures are implemented through the administration of IG to the people who had contact (see definition of contact directly below) with the case during their infectious period. IG should be administered as soon as possible after exposure, and it is 80–90% effective in preventing hepatitis A if administered within 14 days of exposure.

A contact of a hepatitis A case is defined as:

- Household member;
- Sexual contact;
- Anyone who shared food or eating or drinking utensils with a case; or
- Anyone consuming ready-to-eat foods prepared by an infectious food worker with diarrhea or poor hygienic practices.

C. Managing Special Situations

Daycare

If a confirmed case of hepatitis A occurs in a childcare setting, parents and staff must be notified. Sample notification letters can be found in the MDPH *Comprehensive School Health Manual*. Hepatitis A fact sheets should also be sent with the letter. Control of hepatitis A in childcare settings include the following steps:

- When the case is an employee or child enrolled in a center in which all children are toilet-trained, IG is recommended for susceptible employees in contact with the case and for all susceptible children in the same room as the case.
- When a HAV infection is identified in an employee or a child or in the household contacts of two of the enrolled children in a daycare center where children are not toilet-trained, IG is recommended for all susceptible employees and all susceptible, enrolled children in the facility. During the six weeks after the last case is identified, susceptible new employees and children should also receive IG.
- Strictly enforce policies about handwashing (with children and staff) and about disinfecting objects and environmental surfaces with appropriate disinfectants, such as bleach solutions.
- Make sure all parents and staff know to notify the program if any person in their household is diagnosed with hepatitis A.

If recognition of an outbreak in a childcare setting is delayed by three or more weeks from the onset of the index case or if illness has occurred in three or more families, IG should be considered for household members of all center attendees.

Note that childcare setting employees who prepare food, feed children, or administer medications to attendees are considered food handlers and must follow the isolation and quarantine requirements for food handling facility employees who are contacts of cases of hepatitis A (see Section 4A for more information).

School

Hepatitis A occurring in a school setting usually does not pose a significant risk of transmission, and IG is usually not indicated. However, IG may be given to those who have personal contact with a case during the case's infectious period (e.g., sharing food or eating or drinking utensils with a case). If a case of hepatitis A occurs in a kindergarten or preschool class, or in a class where hygiene may not be optimal, more stringent control measures may be needed. Please refer to the *Daycare* section above for more information. (Sample notification letters are available in the MDPH *Comprehensive School Health Manual*.)

Strictly enforce handwashing and cleanliness policies and ensure that all bathrooms are properly supplied with soap, paper towels, and toilet paper. Request that all parents and staff notify the school if any person in their household is diagnosed with hepatitis A.

Community Residential Programs

Actions taken in response to a case of HAV infection in a community residential program should be handled on a case-by-case basis. Management of contacts will depend on the level of hygiene of the case and the type of facility. Roommates and anyone sharing food or eating or drinking utensils should be considered household contacts and should be given IG within 14 days of exposure. If hepatitis A occurs in a staff member of a residential program, the case should be considered a food handler if there was an opportunity to feed, distribute medication, prepare foods, or perform dental procedures during the two weeks prior to symptom onset. Consult with an epidemiologist at the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850.

Infected Food handler

A confirmed case of hepatitis A in a food handler is a potentially serious event and requires that risk for both co-workers and the public be assessed as quickly as possible. If a food handler is a laboratory-confirmed case of hepatitis A, all other food handling employees in the facility must receive IG within two weeks of exposure. Unless the food handling facility employee contacts can produce documentation of vaccination against hepatitis A, can show immunity to HAV by serology, or unless they receive IG within 2 weeks of exposure, they must be excluded from work. The same exclusion criteria apply to any food handling contacts of any confirmed case. (See Section 4A for more information.) In order to determine if the public needs to be notified of possible exposure to HAV, a complete food handling history of the case for the two weeks before symptom onset needs to be reviewed. This review should include dates worked, job duties, foods prepared, and whether gloves or other barrier protection were used by the food handler. Please call the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850 to help determine the risk to the general public.

IG administration to patrons is usually not recommended but should be considered if:

- During the time when the food handler was likely to be infectious, the food handler both directly handled cooked foods or foods that were served uncooked and had diarrhea or poor hygienic practices; and
- Patrons can be identified and treated within two weeks after the exposure.

In settings where repeated exposures to HAV might have occurred (e.g., institutional cafeterias), stronger consideration of more widespread IG use might be warranted.

If it is determined that patrons would benefit from IG administration, the LBOH will be involved in posting public notices, issuing press releases, and/or holding press conferences to identify and inform patrons at risk and in coordinating the administration of IG to individuals. The MDPH Division of Epidemiology and Immunization staff are available to help plan and organize the clinic.

The MDPH Hepatitis A Information Website, at www.mass.gov/dph/cdc/epii/hepatitis/hepa.htm also contains a comprehensive set of documents that would be helpful when planning and organizing a hepatitis A or IG clinic.

Hospitals

Administration of IG to hospital personnel caring for infected patients is not routinely indicated, unless an outbreak is occurring. However, if a hospital staff member is diagnosed with hepatitis A and can be considered a food handler (see the *Glossary* at the end of this manual for a complete definition), then the food handler guidelines must be followed. See Section 4A for more information.

Reported Incidence Is Higher Than Usual/Outbreak Suspected

If the number of reported cases in your city/town is higher than usual or if you suspect an outbreak, investigate clustered cases to determine the source of infection and the mode of transmission. A common vehicle (e.g., food or association with a daycare center) should be sought, and applicable preventive or control measures should be instituted. Control of person-to-person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces. Consult with the epidemiologist on-call at the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850. The Division can help determine a course of action to prevent further cases and can perform surveillance for cases across town lines, which would otherwise be difficult to identify at the local level.

Note: Please refer to the MDPH Foodborne Illness Investigation and Control Reference Manual for more comprehensive management guidelines. Copies of this manual have been made available to LBOH. It is also

located on the MDPH website in PDF format at www.mass.gov/dph/fpp/refman.htm. For the most recent changes to the Massachusetts Food Code, contact the FPP at (617) 983-6712 or through the MDPH website at www.mass.gov/dph/fpp.

D. Preventive Measures

Personal Preventive Measures/Education

HAV infection provides lifelong immunity. In general, however, individuals can avoid exposure to the virus by:

- Always washing their hands thoroughly with soap and water before eating or preparing food, after using the toilet, and after changing diapers.
- Wash their own hands as well as the child's hands after changing diapers, and dispose of feces in a sanitary manner.
- Wash their hands thoroughly and frequently when ill with diarrhea, or when caring for someone with diarrhea. Hands should be scrubbed for at least 15–20 seconds after cleaning the bathroom; after using the toilet or helping someone use the toilet; after changing diapers; before handling food; and before eating.

Consider vaccination of those at high risk of contracting hepatitis A. Massachusetts residents who should be vaccinated include the following:

- Persons (≥2 years of age) traveling to or working in countries with high or intermediate rates of hepatitis A, such as Central or South America, the Caribbean, Mexico, Asia (except Japan), Africa, and southern or eastern Europe. The vaccine series should be started at least one month before traveling.
- Men who have sex with men.
- Injecting and non-injecting drug users.
- Persons with chronic liver disease (not just infection), including those who are awaiting or have received liver transplants.
- Persons who receive clotting factor concentrates.
- Persons who have occupational risk for infection; specifically, those who work with HAV-infected primates or with HAV in a research laboratory setting. Sewage workers do not need to be vaccinated.

Discuss transmission risks that may result from oral-anal sexual contact. Latex barrier protection (e.g., dental dam) may prevent the spread of hepatitis A to a case's sexual partners as well as being a way to prevent exposure to and transmission of other fecal-oral pathogens.

According to the 1999 Advisory Committee on Immunization Practices (ACIP) recommendations, the current incidence of hepatitis A in Massachusetts communities does not warrant routine childhood vaccination. If a major outbreak occurs in a community or larger area, the MDPH may determine, based on local epidemiologic data and ACIP guidelines, that mass vaccination of certain groups is warranted.

International Travel

Travelers to areas where hepatitis A is endemic should receive IG before travel under the following circumstances:

- If they are allergic to a component of the vaccine or elect not to receive vaccine;

- If they are <2 years old (vaccine is not licensed for this age group); or
- If they are traveling to an endemic area in <4 weeks, they may receive vaccine and IG at the same time (in different anatomical sites).

In addition, travelers should pay attention to what they eat and drink. This is extremely important because the vaccine is not 100% effective, and immunity from IG wears off with time. Taking precautions such as those listed below will help prevent other illnesses as well, including travelers' diarrhea, cholera, dysentery, and typhoid fever.

Recommendations to travelers include:

- "Boil it, cook it, peel it, or forget it."
- Drink only bottled or boiled water, keeping in mind that bottled carbonated beverages are safer than bottled non-carbonated ones.
- Ask for drinks without ice, unless the ice is made from bottled or boiled water.
- Avoid popsicles and flavored ices that may have been made with contaminated water.
- Eat foods that have been thoroughly cooked and are still hot and steaming.
- Avoid raw vegetables and fruits that cannot be peeled. Vegetables like lettuce are easily contaminated and are very hard to wash well.
- Peel their own raw fruits or vegetables, and do not eat the peelings.
- Avoid foods and beverages from street vendors.

For more information regarding international travel and hepatitis A, contact the Centers for Disease Control and Prevention's (CDC) Traveler's Health Office at (877) 394-8747 or on the CDC website at www.cdc.gov/travel.

A Hepatitis A Public Health Fact Sheet is available from the MDPH Division of Epidemiology and Immunization or on the MDPH website at www.mass.gov/dph. Click on the "Publications and Statistics" link, and select the "Public Health Fact Sheets" section under "Communicable Disease Control." The fact sheet is also available in Spanish.

ADDITIONAL INFORMATION

Following is the formal CDC surveillance case definition for hepatitis A. It is provided for your information only and should not affect the investigation or reporting of a case that fulfills the criteria in Section 2A of this chapter. (The CDC and the MDPH use the CDC case definitions to maintain uniform standards for national reporting.) For reporting to the MDPH, always use the criteria outlined in Section 2A.

Note: The most up-to-date CDC case definitions are available on the CDC website at www.cdc.gov/epo/dphsi/casedef/case_definitions.htm.

Clinical Case Definition

An acute illness with: a) discrete onset of symptoms; and b) jaundice or elevated serum aminotransferase.

Laboratory Criteria for Diagnosis

Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive.

Case Classification

Confirmed	A case that meets the clinical case definition and is laboratory-confirmed, or a case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (i.e., household or sexual contact with an infected person during the 15–50 days before the onset of symptoms).

REFERENCES

American Academy of Pediatrics. [Hepatitis A.] In: Pickering L.K., ed. *Red Book: 2003 Report of the Committee on Infectious Diseases, 26th Edition.* Elk Grove Village, IL, American Academy of Pediatrics; 2003: 309–318.

CDC. Case Definitions for Infectious Conditions Under Public Health Surveillance. *MMWR*. 1997; 46(RR-10).

CDC. Prevention of Hepatitis A through Active or Passive Immunization. *MMWR*. October 1, 1999; 48(RR-12).

"Viral Hepatitis A Fact Sheet." Centers for Disease Control and Prevention. January 19, 2006. <www.cdc.gov/ncidod/diseases/hepatitis/a/fact.htm>.

Heymann, D., ed. *Control of Communicable Diseases Manual, 18th Edition*. Washington, DC, American Public Health Association, 2004.

MDPH. *The Comprehensive School Health Manual*. MDPH, 1995.

MDPH. *Foodborne Illness Investigation and Control Reference Manual.* Massachusetts Department of Public Health. 1997. <www.mass.gov/dph/fpp/refman.htm>.

MDPH. *Regulation 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements*. MDPH, Promulgated November 4, 2005.

FORMS & WORKSHEETS

Hepatitis A

Hepatitis A

REPORT ACUTE OR ACTIVE (IgM+) CASES IMMEDIATELY

LBOH Action Steps

This form does not need to be submitted to the MDPH with the case report form. It is for LBOH use and is meant as a quick-reference guide to hepatitis A case investigation activities.

LBOH staff should follow these steps when a case of hepatitis A infection is suspected or confirmed in the community. For more detailed information, including disease epidemiology, reporting, case investigation, and follow-up, refer to the preceding chapter.

- ❑ Immediately notify the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850 to report any confirmed case(s) of IgM+ hepatitis A.
- ❑ Obtain laboratory confirmation.
- ❑ Complete a MDPH *Hepatitis A Worksheet*.
- ❑ Identify potential exposure sources, such as food or water, and remove any suspect items.
- ❑ For hepatitis A suspected to be the result of food consumption, complete a MDPH *Foodborne Illness Complaint Worksheet* and forward to the MDPH Center for Environmental Health, Food Protection Program (FPP).
- ❑ Determine whether the case attends or works at a daycare facility and/or is a food handler.
- ❑ Determine whether the case attends or works at a long-term care facility (e.g., nursing home, correctional facility).
- ❑ Determine risk history, including sexual contacts, drug use, etc.
- ❑ Identify other potentially exposed persons.
- ❑ Institute appropriate control measures.
- ❑ Fill out the case report form (attach laboratory results).
- ❑ Send the completed case report form (with laboratory results) to the MDPH Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS).